

The retiring Editor raised, by correspondence, the question of the number of free copies of the *Bulletin* supplied to Authors, particularly in view of the fact that each issue of the *Bulletin* was now larger. His view, with which the Meeting was in agreement, was that 30 free copies was excessive, and the Meeting agreed that a reduction in the number should be made. This alteration, however, requires an alteration of the Rules. The matter was referred to the Committee.

The removal of the Club's photographic equipment from the Rembrandt Hotel was discussed. As a temporary measure, it was decided to ask whether it could be stored in the B.O.U. office. It was also decided that the Committee should consider the sale of the present outdated equipment, and its replacement with modern and lighter equipment.

The problem of housing back numbers of the *Bulletin* was again raised, in anticipation of their having to be removed from the Museum at Tring. The Committee was asked to look into this problem further.

The meeting closed at 6.55 p.m.

The six hundred and fifty-eighth meeting of the Club was held at The Criterion, 24-36 Regent Street, London, W.1 on 20th May, 1969.

Chairman: Dr. J. F. Monk

Members present: 16; Guests 5.

Capt G. S. Tuck, D.S.O., R.N., gave an illustrated talk on Seabirds of the World.

The Sooty Falcon *Falco concolor* Temminck

by R. E. Moreau

Received 20th January, 1969

The documentation of the Sooty Falcon is most unsatisfactory. That it is possible to do a clean-up of some value is due in part to Mrs. B. P. Hall, who in conjunction with Derek Goodwin has examined the material in the British Museum (Natural History) for me and has kindly criticized this paper in draft. I am indebted also to Dr. M. C. Radford and to John Yealland for consulting references for me that I could not reach myself, and to C. W. Benson, Captain H. E. Ennion, Dr. C. Vaurie, Dr. E. Stresemann, Major W. Stanford and Dr. A. Zahavi for answering enquiries.

Biologically the Sooty Falcon is of extraordinary interest because it shares with Eleonora's Falcon the distinction of being the only species of bird that in any part of the north temperate zone starts to breed only after the summer solstice, an adaptation that enables it, like Eleonora's, to feed its young on the autumn migrants. I knew the bird in the 1920s, hunting bats over the Giza Zoological Gardens and also as liable to be seen at any hour of the day about the deeply dissected plateau east of the Nile in the neighbourhood of Cairo—*cf.* Goodwin's (1949) day-time record in similar country near Suez, where, he tells me, he saw a pair catch a Swallow in full daylight. Nicoll (1919) described it as "a resident in small numbers in Lower and Upper Egypt". What evidence then existed for "Upper" is not known—and it may be remarked parenthetically that, notwithstanding the imposing two volumes of Meinertzhagen (1930), Egypt south of Cairo and on both sides of the Nile Valley remains one of the worst-documented parts of Africa—but Tregenza (1951) has since supplied evidence for the prevalence of the bird all over the mountainous eastern desert and on the Red Sea coast from

July onwards. There he found its food to consist of bee-eaters, smaller migrants and also bats. Meinertzhagen (1930) included the statements, at first sight somewhat contradictory, that "a pair bred in 1928 near Ma'adi (near Cairo)" and that "a nest has yet to be found in Egypt". As recently as 1954 Meinertzhagen cited no locality east of Egypt, but Vaurie (1965) included in the species' range "Near East*", breeds in the Dead Sea depression".

West of the Nile there are records in half a dozen widely scattered localities, mostly in extreme desert. The man who subsequently became Burmese Wingate found these falcons associated with very small rocky outcrops in the utter desolation of the Sand Sea (a huge dune-system) south of Siwa (Moreau, 1934) and from the feathers round these places it seems that their prey there consisted of small passerines. The most westerly record seems to be at Ghat, on the south-western border of Tripolitania (Heim de Balsac & Mayaud, 1962), no credence being given to the locality "côtes de Barberie" in the original description of the bird by Temminck. The most south-westerly record is in Tchad at about $13^{\circ} 45' N.$, $13^{\circ} 40' E.$ (Salvan, 1967), where on 10th June one of the birds was feeding on a hatch of "hymenoptera" along with the swifts *A. aequatorialis* and *A. pallidus*. It had enlarged testes and was probably on its way to breed in the desert further north. In the Sudan it has been listed as "an uncommon resident in rocky jebels in the north" (Cave & Macdonald, 1955), but it seems to be recorded with certainty only from Port Sudan, Dongola and Darfur. Actually Lynes (1924) omitted the species from his Darfur list but a male and female he collected at Kulme, about $13^{\circ} 30' N.$, $23^{\circ} 30' E.$, on 14th and 21st June were included under *F. ardosiacus* (*Ibis*, 1925: 397) and exist in the British Museum. Neither bird had enlarged gonads—from what appears below, perhaps, *pace* the Tchad record, the date was too early. The Dongola record is presumably based on the B.M. specimen from "Rowandab, Nubia" (an unidentifiable locality) collected on 10th September, well within the breeding season. The basis of the Port Sudan record remains uncertain, but over much of the mountainous desert north of this, between the Red Sea and the Nile, Tregenza (1951) became familiar with these birds. Of the breeding of *F. concolor* the best documentation comes from Clapham (1964) on the Dahlac Islands in the southern Red Sea off Massawa where Henglin had found the species a hundred years earlier. Eggs (2-4) and young were in the nest around the end of August.

From the foregoing, we have evidence that the Sooty Falcon breeds in three different types of arid environment: (1) islands, (2) deeply cut, mountainous desert such as fills the area between the Nile, the Red Sea and the north-eastern Sudan, to a total area of over 100,000 square miles (compare 93,000 for the United Kingdom), (3) an area of nearly one million square miles west of the Nile, with far more widely spaced "suitable" breeding sites in so far as rocky outcrops and precipitous faces are required. On 26th August, Booth (1967), however, found a pair with three eggs in a cairn a few feet high on the featureless "gravel sheet", utterly devoid of vegetation,

*"Near East" is, of course, an immensely vague expression and Vaurie (pers. comm.) states that no supporting or limiting details are now recoverable. A. Zahavi (pers. comm.) supports the record for the Dead Sea and is reasonably certain that the bird occurs in Sinai, but there is no evidence that it does so much further north. Since the foregoing was written, Professor H. Mendelssohn has informed me independently that there seems no evidence for breeding in Israel outside the Dead Sea depression, with certain breeding there limited to one nest "in the salt cliffs of Sodom".

west of Kufra Oasis. He repeatedly encountered this species between about 20° and 25° E. and as far south as 20° S. The falcons were mainly active at dawn and dusk, feeding on bats and on small migrants—he specifies Willow Warblers *Phylloscopus trochilus*, Whitethroats *Sylvia communis* and Subalpine Warblers *Sylvia cantillans*.

By far the greatest breeding concentration of these falcons appears to be in the southern Red Sea, where Clapham (1964) found 170 pairs with eggs or young in that part of the Dahlac Archipelago which he visited in August. Very likely most of the numerous rocky islands that litter the Red Sea, especially on the Arabian side, are occupied by these falcons—note the record by Long (1961) at 18° 59' N., 2nd May (very early), “about 100 miles from land”. The Dahlac falcons had been feeding on very different, much larger migrants than those eaten in the Libyan desert, primarily Blue-cheeked Bee-eaters *Merops superciliosus*, Hoopoes *Upupa epops* and Oriolus *oriolus*, in that order of abundance.

A big question is how far south and east the breeding range of the species extends and it is, I am afraid, not too much to say that the answer has been bedevilled by Meinertzhagen. In 1930 he referred to “a pair which bred regularly in the Old Fort at Mombasa”, a locality far away from the others cited, at about 4° S. and in a totally different climate and environment. In 1938 Jackson reproduced this statement, but later (Meinertzhagen, 1954) it became “in 1902 there used to be a small colony in the Old Fort”. The record is now generally disbelieved but, since no dates are given, it may all be based on wintering birds (see below). Eastwards in Somaliland the species has been cited as breeding, but according to Archer & Godman (1937) it is “impossible to say whether it is resident or not”. This opinion has evidently been influenced by the fact that the Somaliland records are all in May and June, by which dates “the ordinary migratory birds would have departed”. True enough; but this is far from being an “ordinary” bird since it breeds after the summer solstice. Anyway, although Henglin recorded the species from the “Somali coast”, of the three localities cited for specimens, the two identifiable are about 30 and 60 miles inland, and so likely to be on their way back from winter quarters.

The Gulf of Aden itself has not yielded the data on the Sooty Falcon that might have been expected. Myles North (1946) did not find it on the apparently eligible Mait Island nor during his long stay at Bandar Kassim, about 130 miles west of Cape Guardafui. (Following his regretted death his records have been lent to me for examination: he had hopefully prepared an index card for this species, but it contains no entries.) Moreover A. Forbes-Watson in his recent careful working of Socotra and Abd-el-Kuri failed to encounter the bird (Ripley & Bond, 1966), though Jones (1946) had recorded as “common . . . to all the islands” of the Brothers group, just west of Socotra, in August, what appeared to be *F. concolor*.

On 10th November, 1936, at 4° 40' N., 49° 20' E., about 100 miles off the East African coast, I saw three falcons I concluded were *concolor*, which, after circling round the ship, passed on westwards (Moreau, 1938). If the identification was correct it could only point to a breeding population far to the east. The last thing I would want to do is to insist on a compass bearing, but certainly the falcons approached from the side of the open Indian Ocean and this they are most unlikely to have done unless they had flown from some point east of 49° E. and probably much further east, at least towards the south-eastern corner of the Arabian peninsula.

Authors' current restriction of the breeding range of the Sooty Falcon to west of the eastern shore of the Red Sea no doubt derives from the obfuscations of Meinertzhagen (1954) which it is now possible to sweep away. First, there is no good reason to doubt the August specimen from Charbar, at about 60° 30' E., on the Mekran coast, as recorded by Ticehurst (1927). It was collected by Cumming, curator of the Quetta Museum, who tentatively identified others of this species up to 300 miles further east (*ibid.*). As for the Muscat specimen (*Ibis*, 1886; 163) rejected by Meinertzhagen, the fact that its wings are cut shows that it had been in captivity and so conceivably, but in the circumstances of its time improbably, might not have been a local bird. However, H. E. Ennion (pers. comm.) during 1962-63 repeatedly saw Sooty Falcons on the coast of Oman some 250 miles in length that faces north-east past Muscat, between Sur and Sohar. Here there are long stretches of cliff 50-60 feet high and two islets, Fahl and Suadi, each 3-4 acres in extent with inaccessible cliffs of 30-40 feet. At Fahl Ennion observed 3-4 pairs on 19th June, 22 in the air at once on 22nd October; at Suadi one on 26th January, 4 on 31st January, 6+ on 15th April and 5 on 26th July. Furthermore, W. Stanford (pers. comm.), reconnoitring Fahl Island from a helicopter in June 1968, observed "at least six birds" there.

To fill in the great gap between the Red Sea on the west and the Oman and Mekran coasts in the east, one would expect Sooty Falcons to nest along the coasts of South Arabia and northern Somaliland. However, the only evidence for southern Arabia is negative: Green (1949) explicitly reported that on Masirah Island the only raptorial birds were the anomalous *Elanus caeruleus*. On the other hand we now have evidence for the Sooty Falcon in the Persian Gulf, where suitable breeding sites are probably in numbers. W. Stanford (pers. comm.) writes: "I saw two pairs at Yas Island in June, 1968. It is a fairly large island with a rocky and precipitous centre, uninhabited but accessible [about 75 miles s.s.w. of Abu Dhabi in the Trucial States]. It is used as an artillery and bombing range but most of this activity is concentrated on the flat plain rather than the central peaks. The falcons were very tame: they soared close to us as we sat upon the rocks and were particularly noisy at last light and indeed after dark. I was there for only about 24 hours, so could not see if they were nesting [probably too early]. I did not have time to examine either the cliffs or the east side of the Musandam Peninsula nor another rocky islet near Yas, but the former are very like those [occupied by the falcons] south of Muscat." Ennion's records in Oman in January, cited above, show that not all Sooty Falcons migrate, but most must do so.

Of the winter quarters the most remarkable documentation is that of Rand (1936). He found large numbers in the western (drier) parts of Malagasy from 23rd November (note how this accords with the November date of my birds off the East African coast) and 6th April. In different localities he recorded "twenty or more", "sometimes as many as fifteen", "common . . . sometimes as many as seven perched on one tree in open marshy country where trees were scarce", "in savanna country . . . often noted perched on low ant-hills". Twenty-three stomachs contained insect remains, mostly locusts; only one a bird. Even though *F. concolor* may not occupy more than about 100,000 square miles of Malagasy, Rand's records give an impression of numbers that are amazingly large if the breeding range were indeed limited to the Red Sea and westwards. Moreover the British Museum possesses no less than 20 specimens collected in Malagasy. The statement

that the bird has reached Mauritius (Rountree *et al.*, 1952) 400 miles east of Malagasy is, however, erroneous; the specimen concerned, which is in Cambridge, is *F. eleonora* (C. W. Benson, pers. comm.).

Mackworth-Praed & Grant (1955) made the generalization that the Sooty Falcon is "a regular winter visitor to eastern Africa in some numbers, as well as a resident". The details on which this was based cannot now be recovered (Mackworth-Praed pers. comm.). The mention of "resident" can only be based on that Mombasa record; and the evidence for wintering must have been at best tenuous since the British Museum possesses no African specimen from south of the Sudan, though its records show that it once had one (undated) from "Abyssinia". After the preparation of this book, however, Stresemann (1955) listed a specimen from Dar-es-Salaam on 24th March (1894), presumably in winter quarters, one from Ukerewe Island in Lake Victoria, and a third, also infuriatingly without date, from "Mossamedes". This last record Stresemann has asked me to correct, the specimen in fact having been collected in Moçambique by W. Peters in 1875. Jackson knew of one from Archer's Post in northern Kenya, again undated; however, there is now evidence for both wintering and considerable passage in Kenya. On the one hand, C. W. Benson tells me that the National Museum at Nairobi possesses specimens from Naivasha 18th December, Sabaki River 20th November and Nairobi 21st January. On the other hand, I. S. C. Parker has recently found it to be "a regular passage migrant in some numbers" through eastern Kenya and that on the lower Athi River it eats Queleas (L. H. Brown, pers. comm., who has seen Sooty Falcons also at Lake Nakuru). Eighteen hundred miles to the south, Clancey (1969) has just reported three records in Natal. From the standard works and subsequent information on the birds of Malawi, Zambia and Rhodesia the Sooty Falcon has never been recognized in that great block of territory, part of which it must surely at least traverse.

From all the foregoing we have highly sporadic but inexpugnable evidence that the Sooty Falcon winters in eastern Africa at least from the equator to 30° S., perhaps inland to Lake Victoria. As a breeding bird the Sooty Falcon should be looked for from the Dead Sea and the eastern shore of the Red Sea to Baluchistan and as a wintering bird from Kenya to Natal.

Evidently the Sooty Falcon must be much more numerous than Eleonora's, which is reliably estimated at 2,500 pairs \pm 500 (Walter 1968), so that 10,000 of them would exist each autumn. Stresemann (1968) has calculated that Eleonora's would altogether take the equivalent of 13 million birds of the size of a Nightingale out of the autumn migrants. In terms of biomass the Sooty Falcons would take a far heavier toll, though not correspondingly in terms of individuals, because the prey species of the southern breeding birds are much bigger.

SUMMARY

Sooty Falcons breed in late summer from about 25° N., 10° E. in the Libyan Desert, through the neighbourhood of Cairo and east into Palestine, south to the Gulf of Aden, the northern Sudan and perhaps northern Tchad. There are good reasons for supposing that they breed also 1,000–1,500 miles further east in the Persian Gulf, on the coast of Oman and along the Mekran, so that the bird should be looked for along the south coast of Arabia, indeed in its interior also. Sooty Falcons feed on much bigger birds, *e.g.* bee-eaters, in the south of their range than in the north, where warblers bulk large, and in sum the Sooty Falcon population must take much heavier toll than do Eleonora's. In winter they are common in Malagasy but also occur from Kenya to Natal.

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A note on *Sarothrura lugens*

by F. Roux and C. W. Benson

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Irwin and Benson (1966: 7) indicate that *S. lynesii* Grant and Mackworth-Praed is no more than a subspecies of *S. lugens* (Boehm), the only certain difference being that *lynesii* is the smaller of the two. Much further detail is provided by Keith *et al.* (in press). From the north-west of the known range of the species, in Cameroun, Keith *et al.* were unable to examine any specimen, and relied on the identification by Bannerman (1951: 157) of a female collected at Ngaounyanga, at 8° 48' N., 13° 33' E. This specimen is in fact the type of *S. modesta* Monard. The Muséum National d'Histoire Naturelle, Paris, has received an adult female, containing in the ovary "plusieurs follicules bien développés," collected by Drs. H. J. Garcin and M. Germain 10 kilometres north of Obala on 10th April, 1966, Obala being at 4° 09' N.,